I: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

steps and looked back, Fox-Woman would turn into a bush. When Kala-Woman reached the cliff and emptied the vessel, Fox-Woman pushed her from behind, and she was hurled to death. Fox-Woman herself fell down, but had time enough to jump into the water, and was not killed. When she got ashore, she was all wet, and began to dry herself. She pulled off her skin, took out her eyes, took off her vulva, and hung them all up to dry. Then she lay down in the sun, and fell asleep.

About that time Creator said to Miti', "I am going to take a walk on the seashore." He went. He came to the shore, found the sleeping Fox-Woman, and resolved to make fun of her. He took some water in his mouth, poured it into the vagina of Fox-Woman, and burst out laughing. His laughing woke Fox-Woman up, and in her fright she started running without having time to take her eyes along. She ran without knowing whither. Suddenly she felt some bilberries (*Vaccinium uliginosum* L.) under her feet. She said to the berries, "Give me some eyes." She was given two berries. Fox-Woman put them into her empty eye-sockets. She could see a little, but everything appeared as in a haze. She ran on farther, and found some mountain-cranberries (*Vaccinium vitis idæa* L.). She said to these berries also, "Give me some eyes." She was given two berries. Fox-Woman put them into her eye-sockets in place of the bilberries; and now she could see better, but everything appeared red to her. She ran farther, and found some black crowberries (*Empetrum nigrum* L.). "Give me some eyes," Fox-Woman said. She was given two berries. She set them in place of the mountain-cranberries, and ran home with them. There she said, "Creator has frightened me. I am going to play a trick on him in return." She went to the place where Creator used to go out sea-hunting, and transformed herself into a little boy. Soon Creator came, carrying a seal-stomach filled with fat. As soon as the boy saw Creator, he began to cry. Creator thought to himself, "I will take the boy home, and bring him up like my own son." He put him on his shoulders and carried him toward his home; but Fox-Woman drank all the fat from the stomach, jumped off Creator's shoulders, laughed, and said, "Creator, you frightened me so much that I ran away without my eyes, and now I have fooled you." — "Well, you will not fool me again," said Creator. "Yes, I will!" replied Fox-Woman.

After some time Creator went again for seal-fat. He filled his mouth with fat, that Fox-Woman might not steal it again. Suddenly Fox-Woman came running to meet him, and exclaimed, "I bring you news!" Creator could not control himself any longer, spat out the fat, and said, "Tell me what kind of news." Fox-Woman replied, "Well, you said I would not fool you again." That's all.

Told by Yočiga'vyiñin, a Reindeer Koryak man, in camp on Topolovka River, April 16, 1901.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

133 Ridge. 517 metres; 2. Between Top olovka and Kilimadja Rivers, a branch of the Taigonos Ridge, 540 metres; 3. The summit of the Taigonos Ridge on the way from Gishiginsk to Itkana, 500 metres; 4. The crest between the Talovka and Penshina Rivers, 420 metres; 5. Between Itkana and Paren, 360 metres; 6. Between the mouths of Shestakovka and Penshina Rivers, 360 metres.

The average height of the summits of the ranges of the Stanovoi Ridge on the way from Markova to Penshina River, along the Anadyr River, is determined by Maydell at about 300 metres.[1] The crest of the northern part of the Kamchatka Ridge is estimated to be no higher.[2]

Of the more or less extensive tundra regions, — that is, open expanses devoid of trees, and covered with moss, lichen, grassy hillocks, and creeping plants, — which in summer are converted into marshes, there are the following: —

1. The western part of the Taigonos Peninsula.

2. The Gishiga tundra, occupying the space from the lower course of the Kolyma River to the tributaries of the Paren River in the east.

3. The Parapol Dol, beginning near the village of Lesnovskoye (Lesna). This tundra, broadening near Rekinniki (Rekinnok) village, stretches between the Mameche (Ma'meč) Ridge in the west and that of Kamchatka in the east, abutting on the heights of the Palpal in the north.

4. The Palpal table-land, occupying the entire northern part of the Koryak territory.

Besides, the entire littoral tract of the Okhotsk Sea as well as of the Bering Sea, for a distance of about fifteen miles, is nothing more nor less than a tundra, either sloping down towards the sea, as at Bering Sea, or rising above it, as near the shores of the Okhotsk Sea. Moreover, the summits of highlands, crests, and divides, and occasional glades in the river-valleys, at the places where they become wider, also form tundras. The former are usually covered with moss and lichen, and the latter with grass and grassy hillocks. The tundra of the coast is mainly grassy, with intermittent patches of brown moss hardly anywhere suitable for reindeer-breeding.

● 137 Mosses (*Muscineæ*, of the genera *Polytrichum*, *Hypnum*, *Sphagnum*,
133 *Bryum*, and others) generally cover the most boggy and marshy parts of the tundra; while the lichen (*Lichenes*, of the genera *Cetraria islandica*, *Cladonia rangiferina*, *Cetraria arctica*, *Stenocaulon paschale*, and others), which serves as pasturage for reindeer, creeps over less swampy places, on the summits and slopes of mountains and hills, over places having a stony substratum, or

[1] Maydell, I, p. 225.

[2] However, in the southern part of this ridge we find volcanoes, like the Klunevskaya, 4839 metres high. As to the pass "Polkovnik," in the northern part of the Kamchatka Ridge, Slunin says (I, p. 194), that, on the day when he crossed it, his aneroid indicated a pressure of 738 mm.; consequently its absolute height was less than 300 metres.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

on rocks. The lichen and moss tundras are frequently intermixed, one forming islands in the other. Wherever the tundra is hilly, or where it has slopes which serve to drain certain parts of it, phanerogamous plants appear.

However, the large tundras enumerated above do not represent a continuous plain surface. At some places they are cut up by ravines or by dales watered by rivulets, or they form a hilly surface with mounds and rocks, denuded by atmospheric influences. In this manner, plain marshy, swampy spaces, covered with stagnant water which cannot penetrate the frozen soil, alternate with more or less dry earthy or stony slopes from which all precipitation is carried off, or with dank dome-like or oblong hills standing alone in the midst of the tundra, and often covered with bushes and trees. These hills are called yedoma (едома) by the Russian settlers of northern Siberia, — a name of unknown origin.

Neither are these tundras entirely devoid of arboreal vegetation, which is found here and there, forming, as it were, oases. Some ravines and the banks of some streams have a scant growth of slender willows, thin poplars, and crooked, stunted birches; and the summits and slopes of hills are often covered with low stone-pines, which serve as the only but excellent fuel for the nomadic Koryak and for travellers who occasionally spend the night in the tundra. The hard and solid wood of the stone-pine and its creeping roots burn slowly, and produce a strong heat.

Coasts. — The coasts of the Koryak territory, particularly those of the Okhotsk Sea, have many small bays, which evidently have proved favorable to the formation of permanent Maritime settlements. With the exception of the eastern shore of Kamchatka, almost the entire coast-line is a continuous steep rocky shore (either of granite or gneiss, as for instance on the Taigonos Peninsula, or of schistose rock), with reefs and small rocky islands lying near by, upon which the Koryak of former times used to seek shelter when attacked by enemies. Only the mouths of the rivers are sandy. For this reason the shores, particularly those of the bays of the Okhotsk Sea, are very difficult of access by vessels. Besides, the water in the bays is very shallow, and the sand-bars and sand-banks at the mouths of the rivers prevent vessels from coming close to shore.

The largest bays are those of Gishiga and Penshina in the Okhotsk Sea, and Baron Korff's Bay in Bering Sea. It is curious that on Steller's map of the Okhotsk-Kamchatka region the Taigonos Peninsula is not indicated, and the two bays which are separated from each other by that peninsula are thrown together under the name of Penshina Bay.[1] Gishiga Bay extends into the continent for about 170 miles. The head of Gishiga Bay is so shallow, that steamers have to anchor from sixteen to twenty miles below the

[1] See Steller, map opp. p. 12.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

succeeded in hiring twenty saddle and pack horses.[1] The distance from Gishiginsk to the Koryak village of Paren (about a hundred miles), which in winter is covered in two days when driving with dogs, occupied us eighteen days. It must be added, however, that the conditions were particularly unfavorable. After a very rainy summer the swamps were unusually deep, and, just before crossing the northern part of the Taigonos Ridge, we were suddenly overtaken by a violent snow-storm, which forced us to stop for three days. It so happened that the place where we stopped afforded only very poor pasture; and our horses, tired out by the journey of the preceding days, were completely exhausted.

Good fodder-grass is, as a rule, very rare in that region. The swamps are covered mainly with varieties of reed-grass (*Cyperaceæ*), horse-tails (*Equisetaceæ*), and ferns, which are not very nourishing. In civilized countries many of these grasses, which serve here as fodder for horses, are regarded as harmful for cattle. Thus the horses hardly managed to drag us up to the Koryak village. Of the horses which I sent back to Gishiga with a driver, six died on the way from the effects of a snow-storm, and six in Gishiginsk soon after their arrival in that place.[2]

It may be remarked in this connection that among the horse-tails, the preponderance of which among the pasture-grass frequently produces epizoöty even among the by no means fastidious cattle of northern Siberia, there are found some useful varieties. One species, *Equisetum scirpoides* Mich., is particularly liked by the Yakut horses. The horses of the arctic region fatten in two or three weeks on pastures covered with this variety of horse-tail. On our way from the Gishiga territory toward the Kolyma, in the fall of 1901, we came across an enormous pasture-ground covered with *E. scirpoides* at the source of the Gishiga River, and the Yakut asked me to stop there for a day in order to give the horses a chance to recuperate on that pasture.

VEGETATION. — Very few varieties of trees are represented in the Koryak territory. Of the coniferous trees there are two species, — the East Siberian larch-tree (*Larix Dahurica* Turcz)[3] and the shrub of dwarf cedar or stone-pine (*Pinus pumila* Pall.), which represents a certain variety of the Siberian cedar (*Pinus cembra* L.). Its seeds, small edible nuts, and cones, are the same as those of the Siberian cedar, from which they differ only in size. Dr. Slunin thinks[4] that the Siberian fir (*Picea obovata* Ledb.) is also to be

[1] This trip proved very advantageous. Had I waited in Gishiga for the winter roads to become passable, I should not only have lost two months, but I should also have missed the opportunity of seeing the autumnal religious festivals described in Part I, Chapter V, and which heretofore were unknown.

[2] See the Jesup North Pacific Expedition, popular account (The American Museum Journal, 1903, Vol. III, No. 5, p. 102).

[3] While the Siberian larch-tree (*Larix Sibirica* Ledb.) occurs west of the Yenisei River, the Daburian larch-tree (*Larix Dahurica* Turcz) grows east of it (see Professor S. Korshinsky, The Vegetation of Russia, in The Russian Encyclopædia of Brockhaus and Efron, Vol. XXVII, p. 45).

[4] See Slunin, I, p. 306.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

● 137 found, though very seldom, on the northern coast of the Okhotsk Sea; however, I never observed that tree in the region of Gishiga and Penshina Bays.

Of the deciduous trees there are the following species, — three kinds of birch (*Betula alba* L., *B. Ermanii*, and *B. nana*), the fragrant poplar (*Populus suaveola* Fisch.), the aspen (*Populus tremula* L.), and two kinds of alder (*Alnus incana* Wild. and *Alnaster fruticosus* Ledb.). In addition to these species of trees, there are to be found in the river-valleys a few varieties of willows, which frequently reach quite a luxurious development and height, having thick, tree-like trunks.

[313] While in all other parts of Siberia, particularly in the north, the coniferous trees preponderate over the deciduous trees, we meet here mainly the above-mentioned deciduous trees, which furnish less durable material for building and manufacturing purposes, and which, when used for fuel, do not produce as much heat as do the coniferous trees.

In the absence of other species of coniferous trees, except the abovenamed *Larix Dahurica* and *Pinus pumila*, — such as the Siberian spruce, the pine, the two species of fir, *Picea obovata* Ledb. and *Picea Ajanensis* Fisch., which are represented in the southern region of the Okhotsk Sea,[1] — the Koryak territory (namely, the northern part of the Okhotsk Sea and northern Kamchatka) does not differ from the arctic strip of Siberia west of the Stanovoi Ridge. In the Yakut Province the northern spruce, so characteristic of the woods of the southwestern parts of eastern Siberia, disappears north of Olekminsk, and the Verkhoyansk Ridge forms the northern limit, which the pine and fir do not cross. East of the Stanovoi Ridge the spruce disappears near the Uda River, and the pine and the fir reach to the north as far only as Okhotsk. In Kamchatka the Siberian spruce (*Abies Siberica* Ledb.) and the fir (*Picea Ajanensis* Fisch.) are to be found in the extreme southern part only, along the Kamchatka River and in Kronotzki Bay.[2]

In the distribution of the larch and of the dwarf cedar the Koryak territory differs materially from the arctic region of Siberia west of the Stanovoi Ridge. There the larch (*Larix Dahurica* Turcz) is the tree that forms the northern limit of woods, — like the American fir of North America, — and also reaches highest up on the mountains; there we find the poplar and the aspen only in the river-valleys far to the south of the northern tundra; and in a similar manner the stone-pine or creeping cedar (*Pinus pumila* Pall.) covers the slopes of mountains at the source or at the middle course of the rivers of the Yana-Kolymsk region, without extending far northward. Here, however, in the Koryak territory, the deciduous varieties, the poplar and the aspen, are the trees found to form the limits of arboreal growth (the southeast-

[1] See Slunin, p. 269. According to Korshinsky, there are the varieties *Picea ovata*, Link and *Picea Ajanensis* Fisch. (l. c., p. 46).

[2] See Krasheninnikoff, I, p. 44; Slunin, I, p. 306; Korshinsky, p. 46, map; Ditmar, p. 765.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

ern border-line, in the direction of Bering and Okhotsk Seas), while the dwarf cedar is found highest up on the mountains. 137

In the Koryak territory the larch disappears at a considerable distance from the forest-line. Vast larch-forests may still be found upon the eastern slopes of the Stanovoi Ridge and near the heads of the rivers and their tributaries flowing into the bays of the Okhotsk Sea, such as the Nayakhan, Varkhalan, Gishiga, Paren, and Penshina. On the Varkhalan and Gishiga Rivers, larch-trees, sometimes mixed with poplar and aspen, are to be found, even as far down as their mouths; but on the Gishiga, at about thirty miles from the mouth, they are scant and puny. They follow both banks of the river in almost regular rows, so that on the lower course of the Gishiga one may follow its windings by these scant rows of trees standing out amidst the marshy tundra. However, at a distance of about eighty miles up the Gishiga, large larch-trees with trunks may be observed. One trunk collected by me measured 63 cm. in diameter. East of the lower course of the Gishiga, down to the coast of Bering Sea, the larch-tree is not found.

On my trip from the mouth of the Penshina River up to the north, to the Palpal Ridge, I observed enormous poplar and aspen forests in the river-valleys, but saw no larch-trees. Toward the south the larch may be found again, according to Dittmar, only in southern Kamchatka, at the middle part of the Kamchatka Ridge. But even there it does not flourish down to the sea, being surrounded on all sides by woods of deciduous trees. The proximity of Okhotsk and Bering Seas proves to be unfavorable to arboreal growth in general, and to that of the larch in particular, which, in the river-valleys of the Okhotsk Sea, retires from the shore in the direction of the Stanovoi Ridge.

The larch, which can endure the cold of −70° C. in Verkhoyansk, is unable to withstand the destructive influence of snow-storms and the sudden formation of ice on its trunk after penetrating dampness. For the same reason, poplars and aspens disappear at a distance of from twelve to seventeen miles, or more, from the seashore. Only when protected by the banks of the river-valleys or hills do we find them nearer to the shore.

The stone-pine, growing upon hills and mountain-slopes, attains in the Koryak territory higher altitudes than other varieties of trees. According to my observations on the Taigonos Ridge, the stone-pine reaches an altitude of about five hundred metres absolute height; while the deciduous trees, such as poplar, aspen, and alder, remain far below, in valleys and gorges. It should be added, however, that on the Stanovoi Ridge proper, even on its eastern slope, the larch marks the vertical limit of forest-growth.

I have entered in my travelling-diary that on the eastern slope of the Stanovoi Ridge, in the valley of the upper course of the Gishiga River, the poplar and aspen disappear at the height of 515 metres; the stone-pine, at

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

137 the height of about 540 metres; while the larch reaches as high as 585 metres.[1] Travellers who have visited northeastern Siberia usually describe the stone-pine as a low, creeping shrub. Slunin says[2] that the stone-pine does not reach more than three feet in height. In most cases this is perfectly true; but on the Taigonos Ridge and on the elevated right bank of the Paren River we saw stone-pines six and seven metres high with a trunk-diameter of forty centimetres, and over. In some places these trees actually formed a dense forest. Sitting on our horses, we could reach out with our hands and pull down the cones filled with nuts, but from the lower branches only. Hence the term "creeping" or "dwarf" cedar could hardly be applied to those particular specimens of the stone-pine.

It may be said, in general, that the territory of the Koryak, especially the inhabited places near the seashore or the tundra, are scantily supplied with trees. Vast forests — deciduous, or coniferous mixed with deciduous varieties — are to be found, as we have seen, on the eastern slopes and branches of the Stanovoi Ridge. Farther east, the forests are confined to river-valleys, and some groves may be found on mountain-slopes and hills. But the forests become still scarcer as we approach Bering Sea. East of the Gishiga, the spaces between the river-valleys are either treeless tundras with a few thin shrubs of willow, alder, Erman birch, mountain-ash, blackberry, and hard carices scattered here and there, or mountains whose slopes are overgrown with dwarf cedar.

824 [233] Thus the western slope of the Taigonos Ridge, the Parapol Valley (which passes in the north into a tundra plain), and the elevated tundra of the Palpal plateau-land, constitute more or less vast tundras covered with moss, and are suitable for reindeer-breeding. The mouths of the rivers and the rocky seashore, where the Maritime Koryak live, are covered with grass, among which there are some gramineous varieties, particularly the *Elymus mollis* Trin., which plays an important part in the Koryak household, and which sometimes reaches the height of a man. Here on the littoral strip we observe a few varieties of sedge-grass, which is used in sacrificial ceremonies, the edible willow-herb (*Epilobium angustifolium*), two varieties of nettle (*Urtica dioica* L. and *Urtica angustifolia* Lebd.), which are used for making thread for plaiting sacks, bags, and nets. For other useful plants the reader is referred to Chapter VIII and X.

313 The lack of woods at the river-mouths is compensated for by the drift-wood carried down from the upper and middle course of the rivers during

[1] It is of interest to add, in connection with this, Slunin's description (I, p. 194) of the eastern slope of the Kamchatka Ridge, between the Karagha and Dranka Rivers, from the coast-line to the summits. He says, "First there is the rolling, wet, treeless tundra, the tundra of the reindeer; a little higher follows a wide strip of stone-pine tundra; still higher up, the mountain-slopes are thinly overgrown with Erman birch, the mountain-summits are sloping and treeless". From this description we draw the conclusion that in that region *Betula Ermanii* forms the vertical limit of arboreal growth on mountains.

[2] See Slunin, I, p. 306.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

When the fire is not burning in the house, the entrance-room door is closed and the opening on its roof is stopped up by a plug plaited of the stems of *Elymus mollis*. When the fire is started, the plug is removed from outside, placed upon the roof of the entrance-room, and the door leading from the latter into the house is opened. Thus a current of cold air forces the smoke upward into the roof-hole; but, since the opening is not directly over the hearth, the smoke strikes the ceiling, and spreads over the upper part of the house. When sitting on the floor, it is possible to remain in an atmosphere which is not charged with smoke. For instance, I could easily take notes when sitting on a log; but when I stood erect, taking anthropometrical measurements, while the fire was burning, my eyes would begin to water. During very violent or irregular winds, a return-draught or a changing draught is formed, and the house becomes completely filled with smoke. 342 354 [137]

In the fall the Koryak chop driftwood into thin billets, and put them upon the roof around the funnel, except on that side by which the people ascend to the roof. This is done in order to have handy a supply of wood during severe snow-storms, which often rage for several days in succession, when it is utterly impossible to get out of the house. Of course, in good weather the supply of wood is sometimes renewed in winter. The wood is split into small bits to secure a fire quickly. [313]

When the fire is first started and the entrance-room door is opened for the draught, the cold air strikes the feet, and the house is quite cold; but after the wood has burned out and the draught is shut off, the house begins to grow warm. It gets very warm when only red coals are left on the hearth and the smoke-opening is covered up. The temperature sometimes reaches 20° Centigrade. When the entrance-opening is covered up, the heat remains for a considerable time. During the night the house gets very cold, and the temperature in the morning is often below zero. Thus the temperature drops between the times when the fire is made. To save fuel, the fire is not made often, only two or three times during the day. It is made invariably in the morning directly after getting up, and in the evening, before going to bed, — at the time of the two main meals. During the day, fire is sometimes made in order to prepare tea, or if company should come.

The Maritime Koryak dwelling, compared with the tent of the Reindeer Koryak, provides the people with good shelter from frosts and winds. I think, therefore, that this type of Arctic dwelling is more ancient than the tent, which must have appeared in the far northeast of Asia together with the domesticated reindeer.

The cover used for shutting the roof-hole is made of boards tied to two cross-pieces by means of thongs drawn through holes. The cover is somewhat wider than the square opening of the entrance. A half-circular section is cut out at the side for the ladder to pass through, and thus the entire opening

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

of the reindeer. All that has been described in detail by Mr. Bogoras.[1] I shall confine myself, therefore, to giving some additional information and to indicating some points of difference.

Food of Reindeer. — In summer, as is well known, the reindeer like fresh grass, especially the young sprouts of reed-grass, the leaves of the birch, willow, and poplar, as well as mushrooms. In winter they feed exclusively on lichens;[2] but wherever the horse-tail (*Equisetum scirpoides* Mich.[3]) is to be found, they readily eat it in the winter as well, and frequently prefer it to lichens. But this low-growing weed is found only in certain localities, — in the sandy valleys of mountain-streams, where, in some places, it thickly covers large areas. In spite of the fact that in winter it is covered up with snow, the reindeer discover it by their sense of smell, as they do the lichen. More than once in the winter, I had an opportunity to see, in the mountain-valleys between the Indighirka and Yana Rivers, how ravenously the reindeer devoured that plant. The Tungus told me that they fatten on it, the same as do horses. It retains its juice throughout the winter, and does not dry up like grasses. During the winter the reindeer in the woods also eat lichens growing on trunks of trees.

When the reindeer feed exclusively on lichens, they acquire a special longing for the urine of human beings. This longing attracts them to human habitations. Fig. 63 represents a vessel (qoya'-oča'-lăm, which signifies "the reindeer's night-chamber") made of seal-skin, which every herdsman carries suspended from his belt, and of which he makes use whenever he desires to urinate, that he may keep the urine as a means of attraction in capturing refractory reindeer. Quite frequently the reindeer come running to camp from a far-off pasture to taste of snow saturated with urine, a delicacy to them. The reindeer have a keen sense of hearing and of smell, but their sight is rather poor. A man stopping to urinate in the open attracts reindeer from afar, which, following the sense of smell, will run to the urine, hardly discerning the man, and paying no attention to him. The position of a man standing up in the open while urinating is rather critical when he becomes the object of attention from reindeer coming down on him from all sides at full speed.

Fig. 63 ($\frac{1}{11}$). Vessel made of Seal-Skin. Length, 15 cm.

While subsisting exclusively on lichens, the reindeer develop also a liking for animal food. This peculiarity has been noticed by many travellers. It

[1] Bogoras, The Chukchee, Vol VII of this series, pp. 80—95.
[2] See p. 399.
[3] See p. 386.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

A stone bone-breaking set is one of the indispensable belongings of every household. It consists of a large stone slab or anvil, called ɬâo'ŋin ("board-stone") and a stone pestle (cipə'iŋin) or hammer. Both are selected from among the water-worn pebbles on the banks of rivers. The Koryak themselves do not work them into shape. The board-stone must have one smooth, even surface; and the hammer, an oblong shape, round at the ends. Two hammers are shown in Fig. 102. On the board-stone, bones are crushed with

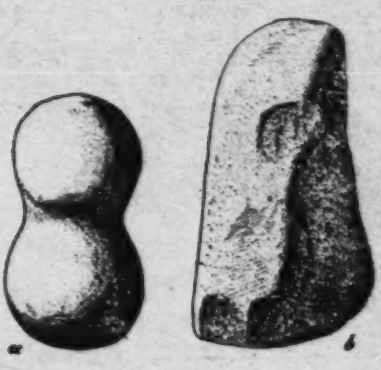

Fig. 102, *a* (ɬâiŋ), *b* (ɬâiŋ). Stone Hammers. Length, 12 cm., 17 cm. *a*, From Kamenkoye; *b*, From Tilpil River.

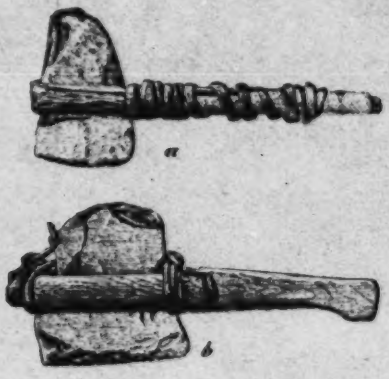

Fig. 103, *a* (ɬâiŋə), *b* (ɬâiŋ). Stone Hatchets. Length, about 30 cm.

the hammer to extract the marrow or to boil out the tallow for lighting; hard dried fish is softened on it or pounded with berries; roots are pounded for cooking gruel and for making puddings; and meat with fat is pounded for cutlets.[1]

Edible herbs, chiefly willow-herb (*Epilobium angustifolium*), are chopped on the stone anvil by means of stone hatchets. Two of these are shown in Fig. 103. The cutting-edge is sharpened by chipping, just like the edges of stone arrows and knives.[2] The handle of the hatchet *a* is made of a willow rod split in two and bent double, the hatchet being set between the two bent halves, the free ends of which are tied together with thongs. Another method of hafting is shown in *b*. The wooden handle is placed on one side of the hatchet, while on the other a short stick is applied, the ends of which are tied firmly to the handle. The grooved stone axe is held firmly between the two sticks.

The Koryak drink much water. They often get up in the night to take a drink of cold water, of which they always have a supply in wooden or

[1] See p. 578.

[2] See Chapter X.

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the mice resort to suicide by hanging themselves in the crotches of branches. The following roots are dug out of mice-holes: bulbs of martagon (*Fritillaria sarana*); *Claytonia acutifolia* Wild, called "sweet-root" by the Russians, ı'nat by the Koryak; roots of wild sorrel (*Polygonum polymorphum*); the root called me'tćin by the Koryak and "bitter-root" by the Russians; and the roots of sedge grass (called pa'lxo by the Koryak). All these roots are eaten both raw and cooked. When eaten raw, they are dipped in seal-oil or pounded with roe. They are cooked with fish and reindeer-meat, either in the form of a porridge made of roots ground together with fish, or by cooking roots in seal or reindeer blood.

Fig. 111, *a* ($\frac{1}{11}\frac{1}{17}$). *b* ($\frac{1}{11}\frac{1}{17}$). Picks for gathering Roots. Greatest length, 56 cm., 37 cm.

Willow-herb (*Epilobium angustifolium*; Koryak, mı'nmet occupies the first place among edible herbs. The stems of willow-herb are dried in bunches in the sun or over the hearth, and are chopped with stone hatchets (see Fig. 103). Pieces of sea-blubber or reindeer-fat are dipped into the powder thus obtained, and are thus eaten. The flour is also made into a pudding by grinding the crushed herb with berries and melted seal-oil. In Kamchatka the pith is taken from the split stems, dried in the sun, and stored away for winter use. The fresh leaves of willow-herb are used instead of tea, when the latter is lacking. In northern Kamchatka the Koryak use for food the stem of the sweet *Heracleum spandilium*.

Berries as well as roots are used fresh, raw, or cooked in porridge made of blood, or of cooked fish or meat. Berries also form an ingredient in puddings made of ground fish-roe, fat, and pounded fish. A favorite dish is furnished by the pounded flesh of sun-dried dog-salmon mixed with seal-oil and bleaberries. This mixture is pounded in wooden trays or dishes with wooden or bone pestles. A bone pestle is represented in Fig. 112. The following is a list of the principal berries used: *Empetrum nigrum*, *Vaccinium uliginosum*,

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Vaccinium Vitis idæa, *Rubus chamæmorus*, and also *Lonicera cærulea* and *Prunus padus* (in northern Kamchatka). Bleaberries (*Vaccinium uliginosum*) are considered the best. In Kamchatka the fruit of *Prunus padus* is crushed, and dried in the sun in the form of flat cakes.

Puddings made of crushed berries, roe, fish and seal oil, are frozen and then eaten, pieces being chopped off with a knife. These puddings are considered a treat for visitors, and excellent travelling-provisions.

Fig. 113 (1/11). Bone Pestle. Length, 23 cm.

Berries are picked in summer and autumn. The Reindeer Koryak have more opportunity than the Maritime Koryak to pick the cloudberry (*Rubus chamæmorus*), which grows in the tundra; but they do not store it, and they eat it right after picking.

Other food-plants are the fruit of the wild rose (*Rosa alpina* Pall.), the mountain ash, sea-colewort, cedarnuts, and willow-bark. Sea-colewort (*Alaria esculanta;* Koryak, me'čgomei) is eaten not only by the Maritime Koryak, but also by the Reindeer Koryak when hunting on the seacoast in summer. It is cut with a knife, and cooked with seal or reindeer blood, or also with reindeer-meat. Cedar-nuts are gathered late in autumn, extracted from their cones, and preserved in small skin bags. It is interesting to note that the Koryak eat the nuts with their shells on. The inner portion of willow-bark is also consumed. It is stripped off the trees, crushed with a stone hammer, and cooked with fish. It is also chewed raw.

To the vegetable foods used by the Reindeer Koryak must also be added the contents of the reindeer's first stomach, which consists of reindeer-moss not completely digested. This greenish mass is cooked with reindeer-blood. This food, however, is now beginning to drop out of use. Wealthy reindeer-breeders usually throw away the contents of the reindeer stomach; but when other food is lacking, the herdsmen eat them.

The winter supplies of berries, roots, and other edible plants, are not large, and do not figure as an essential or constant ingredient of nourishment. Towards the middle of winter, hardly any supplies of vegetable food are left; and towards spring, when animal food is about to give out, all the vegetable food has been consumed.

Flour and rice are sold by Russian dealers. These products may also be found at the government depot in Gishiga, where they are sold to the natives at cost price.

The Koryak are very fond of these imported vegetable products, particularly of rice, of which gruel is cooked and eaten with seal-oil or reindeer-fat. They like wheat flour, but not rye flour. It is mixed with water or blood, and

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262 boiled as a gruel. Most of the Koryak can rarely afford to have imported
439 food, as they have no money with which to buy it. Biscuits and fresh bread
also have the reputation of being good food; but these, too, very rarely come
[437] within their reach. In winter the cossaks and other Russian inhabitants take
bread to the Koryak villages and camps, and exchange it for reindeer-meat
and other products. Still the Koryak look upon biscuit and bread rather as
a dainty, and not as a real food on which a human being can subsist. I
have heard the Koryak say that when they eat too much bread, they suffer
from stomach-ache.

272 Tea came to be known after the people had come into contact with the
177 Russians. At present its use is wide-spread everywhere. Most of the Koryak,
however, have no tea in summer, as they lack the means to buy large
supplies. The kind of tea used is brick-tea. To make tea, the brick is
heated by the hearth, as a result of which it becomes soft and can be minced
with a knife. The minced tea is boiled in a tea-pot. The tea decoction is
strong, and almost black in color. Brick-tea is inferior to leaf-tea as a stimul-
272 ant. The Koryak drink much tea, ten and more cups in succession, and do
264 so several times a day, provided they find any one willing to treat them.
Usually the Koryak drink tea after meals; but when guests are feasted, a
light side-dish, like sun-dried fish, marrow from reindeer-legs, or berry-pudding,
is served first, then tea, and finally meat dishes. Tea is served in the same
order by the other inhabitants of northeastern Siberia; for instance, by the
415 Yakut, Tungus, and Yukaghir. A teapot and two or three cups of crockery
177 or enamelled ware, with saucers, are found in nearly every house. They are
preserved as treasures, in special boxes with holes chiselled out for the cups;
or they are wrapped in soft rags. In the absence of a sufficient number of
cups, they drink tea by turns, the women and children after the older people.
Visitors usually bring their own cups with them. . . The Koryak also have
home-made cups made of deer-antler and horn of the mountain-sheep. The
small tin cans in which our condensed milk was put up were very cleverly
turned into cups with tin handles. The Koryak drink the hottest tea from
them without burning their lips.

276 Narcotics and Stimulants. — The Koryak have also learned the use of
177 tobacco from the Russians, and, like all other Siberian natives, they are passion-
ately fond of it. But while others, the Chukchee among them, mainly smoke
tobacco, very few smokers are found among the Koryak. Generally they
chew it, more rarely they snuff it, or they use it in both ways. They use
strong Russian leaf-tobacco, imported from the south of European Russia, in
bunches of about two pounds each.

For both chewing and snuffing, the tobacco is ground with ashes.
[137] Fig. 113 shows a wooden mortar with a pestle for grinding tobacco. When
grinding the tobacco, dried leaves of cudweed (*Gnaphalium uliginosum* L.)
are often added,

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aspen-bark. Though the Koryak are not such passionate tobacco-consumers as the Yakut, Tungus, Yukaghir, and other Siberian natives, hardly a man is to be found who does not use tobacco in one form or another. Many of the women, however, hardly use tobacco at all; while among the tribes mentioned above, not only every woman and adult girl, but even girls in their early teens, have their own pipes and tobacco-pouches; and the lack of tobacco is considered to be worse than hunger.

The Koryak are most passionate consumers of the poisonous crimson fly-agaric, even more so than the related Kamchadal and Chukchee, probably because the fungus is most common in their territory. Some travellers, as Krasheninnikoff and Dittmar, were of the opinion that the fly-agaric was bought by the Koryak from Kamchatka. Thus, Dittmar says that there is no fly-agaric on the Taigonos Peninsula,[1] and that it is brought there from Kamchatka; while Krashennikoff[2] asserts that in general the Koryak have no fly-agaric, and that they get it from the Kamchadal. My own observations, however, have convinced me that not only is fly-agaric abundant all-over the Koryak territory, but that the Koryak supply the Chukchee with it. In the middle of the month of August I saw in the valley of the Varkhalam River, not far from its mouth, an extensive field dotted with the characteristic crimson caps of the fly-agaric, with their white spots. In the villages of the Maritime Koryak, along the whole western coast of Penshina Bay, I knew individuals who were engaged in gathering and drying fly-agaric, and who carried on a very profitable trade in it. One Koryak from Alutorsk, who dealt in fly-agaric, is mentioned by Slunin.[3]

The Koryak do not eat the fly-agaric fresh. The poison is then more effective, and kills more speedily. The Koryak say that three fresh fungi suffice to kill a person. Accordingly, fly-agaric is dried in the sun or over the hearth after it has been gathered. It is eaten by men only; at least, I never saw a woman drugged by it.[4] The method of using it varies. As far as I could see, in the villages of Penshina Bay, the men, before eating it, first let the women chew it, and then swallow it. Bogoras[5] says that the Chukchee tear the fungus into pieces, chew it, and then drink water. Slunin describes in the same way[6] the Koryak method of using fly-agaric. In describing the use of fly-agaric by the Chukchee and Koryak, Dittmar[7] says that they chew it, and keep the quid in their mouths for a long time without swallowing it. Krasheninnikoff[8] says that the Kamchadal roll the dried fungus up in the form of a tube, and swallow it unchewed, or soak it in a decoction of willow-herb and drink the tincture.

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[1] Dittmar, p. 451. [2] Krasheninnikoff, II, p. 150. [3] Slunin, I, p. 654.

[4] Krasheninnikoff (II, p. 150) says that the Kamchadal women do not eat fly-agaric, but Dittmar (p. 106) cites the case of a Koryak woman (a shaman) who was intoxicated by it.

[5] Bogoras, The Chukchee, Vol. VII of this series, p. 205.

[6] Slunin, I, p. 655. [7] Dittmar, p. 506. [8] Krasheninnikoff, II, p. 147.